



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/564,503	01/13/2006	Yasuhiro Kabu	284585US0PCT	8831
22850	7590	09/10/2010	EXAMINER	
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314			WEISZ, DAVID G	
			ART UNIT	PAPER NUMBER
			1797	
			NOTIFICATION DATE	DELIVERY MODE
			09/10/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com
oblonpat@oblon.com
jgardner@oblon.com

Office Action Summary	Application No. 10/564,503	Applicant(s) KABU ET AL.	
	Examiner DAVID WEISZ	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,4 and 6-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,4 and 6-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>6/22/10; 8/13/10</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Acknowledgement is made of amendments filed 6/30/10. Claims 1, 3-4 and 6-10 are pending and presented for examination.

Response to Amendment

2. In response to the amendment and remarks, the examiner maintains the grounds of rejection.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. **Claims 1, 3-4 and 6-10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hammon et al. (US 2004/0015012) in view of Ono et al. (WO/2002/068378, using citations from National Stage application US 2004/0116746 as an English language translation) and Okada et al. (US 6057482) (Okada).

Regarding claim 1, Hammon discloses a method for supplying reaction gases in a catalytic gas-phase oxidation reaction (see “catalyzed gas-phase” [0001]) in which at least a material to be oxidized (see “oxidation” [0001]) and a gas containing molecular oxygen (see “molecular oxygen” [0001]) are mixed and the resultant mixture is supplied to a catalytic gas-phase oxidation reactor (see “reactor” [0001]), wherein a feed rate of the material to be oxidized and a feed rate of the gas containing molecular oxygen are adjusted (see “feed gas mixture” [0032]) so that when a composition of a gas at the inlet of the catalytic gas phase oxidation reactor is changed from one composition to another, the composition falls outside the explosion range (see “always outside the explosion area” [0033]), wherein the material to be oxidized is isobutylene, tertiary butyl alcohol, or methacrolein (see “methacrolein” [0011]), wherein one of the feed rates of the material to be oxidized and the gas containing molecular oxygen is adjusted in advance by increasing or decreasing it away from the explosion range (see “cut-out mechanism” [0033]). However, the reference does not specifically disclose that the method is

performed continuously without shutting off the feed, as is implicit given the word "reactive".

Ono discloses a catalytic reaction method (see "catalyst" [0086]) wherein a molecular oxygen-containing gas is used and adjusted to avoid an explosion limit (see "explosion limit" [0087]). The reference discloses that the concentration of oxygen is adjusted to be lower than the explosion limit (see "concentration of oxygen" [0087]). One having ordinary skill in the art would understand this to mean that, while the concentration is adjusted, a concentration of oxygen is still present in the gas mixture.

Okada discloses a catalytic reaction method (see "catalyst", Col10/L6-22). The reference additionally discloses that the reaction parameters are adjusted to avoid an explosion range (see "explosion range" Col10/L35-45). The reference additionally discloses that one of these parameters is the feed rate of oxygen per unit catalyst, which must not exceed a certain level (see "feed rate of oxygen" Col10/L35-45). One having ordinary skill in the art would understand that adjusting the feed rate of oxygen is a well known method of controlling oxygen concentration to avoid an explosion range. Further, one having ordinary skill in the art would adjust the feed rate of oxygen, rather than cutting off the oxygen supply, in the method of Hammon, as it is a known method of controlling oxygen concentration to avoid an explosion range while maintaining optimum oxidation-reaction conditions.

Regarding claims 3 and 10, Hammon-Ono-Okada disclose all of the claim limitations as set forth above. Further, Hammon discloses that the feed rates of the reaction gases are adjusted when certain composition points are reached (see "continuous operation" [0032]). One having ordinary skill in the art would understand that a continuous oxidation–reaction would have multiple composition points.

Regarding claims 4 and 6, Hammon-Ono-Okada disclose all of the claim limitations as set forth above. Further, Hammon discloses that a computer is controlled by a characteristic explosion diagram (see "diagram" and "computer", paragraph [0146]). It would have been obvious to one having ordinary skill in the art to display the information on a monitor so that one operating the system would be aware of the reaction progress.

Art Unit: 1797

Regarding claims 7-9, Hammon-Ono-Okada disclose all of the claim limitations as set forth above. Further, Hammon discloses the material to be oxidized is isobutylene (see "isobutene" [0011]), tertiary butyl alcohol (see "tert-butanol" [0011]) or methacrolein (see "methacrolein" [0011]).

Response to Arguments

5. Applicant's arguments filed 6/30/10 have been fully considered but they are not persuasive. On page 7 it is argued that neither Ono et al. nor Okada et al. disclose or suggest that one of the feed rates is increased/decreased away from an explosion range; then the other feed rate is increased/decreased to reach the composition B point. Please refer to the above rejection where it is disclosed in Hammon that "a feed rate of the material to be oxidized and a feed rate of the gas containing molecular oxygen are adjusted". Further, it is considered obvious in the art to adjust a feed rate away from an explosive range. Further, it would be obvious to one having ordinary skill in the art that adjusting either the oxygen feed rate or the material to be oxidized would alter the concentration of oxygen, which is discussed in the above rejection. Therefore, the claims remain rejected.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Art Unit: 1797

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID WEISZ whose telephone number is (571)270-7073. The examiner can normally be reached on Monday - Thursday, 7:30 a.m. - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Kim can be reached on (571)272-0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

9/7/2010

/Yelena G. Gakh/
Primary Examiner, Art Unit 1797

/D. W./
Examiner, Art Unit 1797